

A NEW *HYPATOPA* FROM COSTA RICA (GELECHIOIDEA: COLEOPHORIDAE: BLASTOBASINAE)

DAVID ADAMSKI

Department of Entomology, NHB-127, Smithsonian Institution, Washington, D.C. 20560

ABSTRACT. *Hypatopa tapadulcea* is described from northwestern Costa Rica. A photograph of the imago and illustrations of wing venation and male and female genitalia are provided.

Additional key words: Lepidoptera, Blastobasini, Guanacaste, Puntarenas.

About ten years ago a survey of all Costa Rican fauna and flora was undertaken by Instituto Nacional de Biodiversidad (INBio). Among the many organisms collected were microlepidoptera, and through the efforts of Costa Rican "parataxonomists", a large number of specimens of Blastobasinae have accumulated. Through the combined work of many Costa Ricans and invited scientists, an inventory for this neotropical region is possible. This paper describes *Hypatopa tapadulcea*, and represents one small work among several major studies planned by the author to make known the rich diversity of this group of moths.

Members of the Blastobasinae are generally small to medium-sized, drab moths with fewer than 150 species described worldwide. This number, however, greatly underestimates the species richness, as there are hundreds of undescribed species represented in collections, especially from the Neotropics.

Meyrick (1894) was the first to recognize the Blastobasinae as a monophyletic group. Recent studies by Adamski and Brown (1989) and Hodges (1998) have corroborated this notion, and have established monophyletic groupings at the generic and familial levels within the Blastobasinae and Gelechioidea, respectively.

Kornerup and Wanscher (1978) is used as a color standard for the description of the adult vestiture. Genitalia were dissected as described by Clarke (1941), except mercurochrome and chlorazol black were used as stains. Pinned specimens and genital preparations were examined with dissecting and compound microscopes. Measurements of wings and genitalia were made using a calibrated ocular micrometer.

Hypatopa tapadulcea Adamski, new species

(Figs. 1–4)

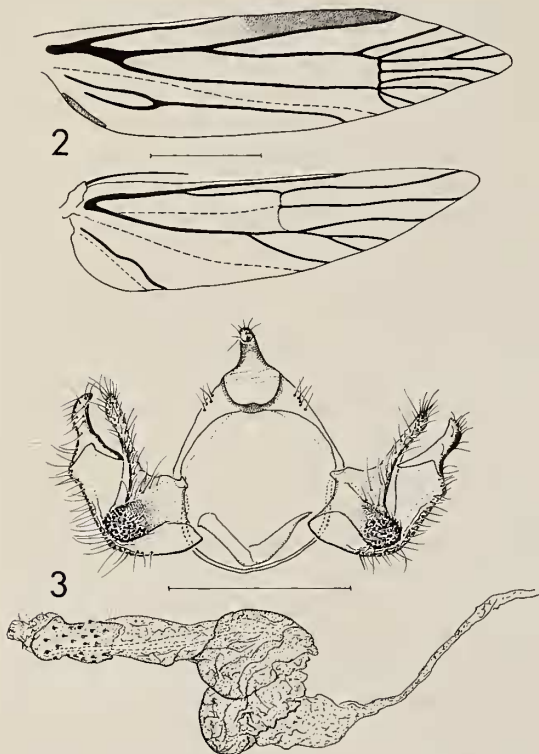
Diagnosis. Male with inner margin of gnathos slightly widened, forming a small broadened lobe, sacculus subrectangular, aedeagus bulbous at base; female with ostium elongate, ductus seminalis wide at base, ductus bursae spiralled.

Description. *Head:* vertex and frontoclypeus with grayish-brown scales tipped with yellowish brown, females mostly pale yellow brown; outer surface of labial palpus with grayish-brown scales tipped with yellowish brown intermixed with grayish-brown scales, and grayish-brown scales tipped with pale grayish brown, and yellowish-brown scales, inner surface mostly with yellowish-brown scales intermixed with few grayish-brown scales; some males with inner surface patterned similar to outer surface; females with mostly yellowish-brown scales on both surfaces; antennal scape and pedicel patterned as above; flagellum mostly brownish gray intermixed with few yellowish-brown scales; proboscis pale yellowish brown. *Thorax:* basal area of tegula and mesoscutum grayish brown, pale grayish brown distally. Legs with outer surface mostly brown intermixed with few yellowish-brown scales, yellowish-brown bands near midtibia, apices of femur, tibia, and tarsomeres, undersurface with mostly pale yellowish-brown scales intermixed with few brown scales. *Forewing* (Fig. 1): length 5.1–6.5 mm ($n = 77$), ground color yellowish brown intermixed with few brown scales; base posterior to CuP with a short dark-brown marginal streak; median fascia present, absent, or incomplete, usually distal 2/3 of wing darker than basal 1/3; discal spots absent; several similar-sized marginal brown spots on subapical and apical areas forming an irregular pattern; undersurface brown. Female paler than male. Venation (Fig. 2), cubitus 4-branched with M_2 and M_3 separate from M_1 , CuA_2 about 45 degree angle to margin; distal part of M_1 near parallel with M_2 and M_3 . *Hindwing:* brownish gray, females paler. Venation (Fig. 2), cubitus appearing 4-branched with CuA_1 and M_3 stalked beyond base of M_2 . *Abdomen:* brownish gray above, pale yellowish brown beneath, male with pale yellowish-brown scales on digitate process of upper part of valva, female pale yellowish brown beneath. *Male genitalia* (Fig. 3): uncus slightly broadened at base, narrowed distally, apical part hooked posteriorly, apex rounded and sparsely setose; gnathos medially narrowed, medially widened, forming a small broadened lobe; tergal setae present; vin-



FIG. 1. Holotype of *Hypatopa tapadulcea* Adamski.

culum a thin band; juxta entire, not divided; lower part of valva with marginal setae, distal part setose, tapered to a pointed apex; upper part of valva with a subrectangular sacculus; sacculus with mostly stout setae intermixed with hairlike setae, a small cluster of microtrichia near outer margin at base of long, setose digitate process; aedeagus bulbous at base, parallel sided to apex; anellus setose. *Female genitalia* (Fig. 4): ovipositor telescopic, in four membranous subdivisions; ostium elongate, delimited within membrane



FIGS. 2-3. Wing venation and male genitalia of *Hypatopa tapadulcea* Adamski. 2, Wing venation. Scale line = 1.0 mm. 3, Male genitalia. Genital capsule is figured above, aedeagus below. Scale line = 0.5 mm.

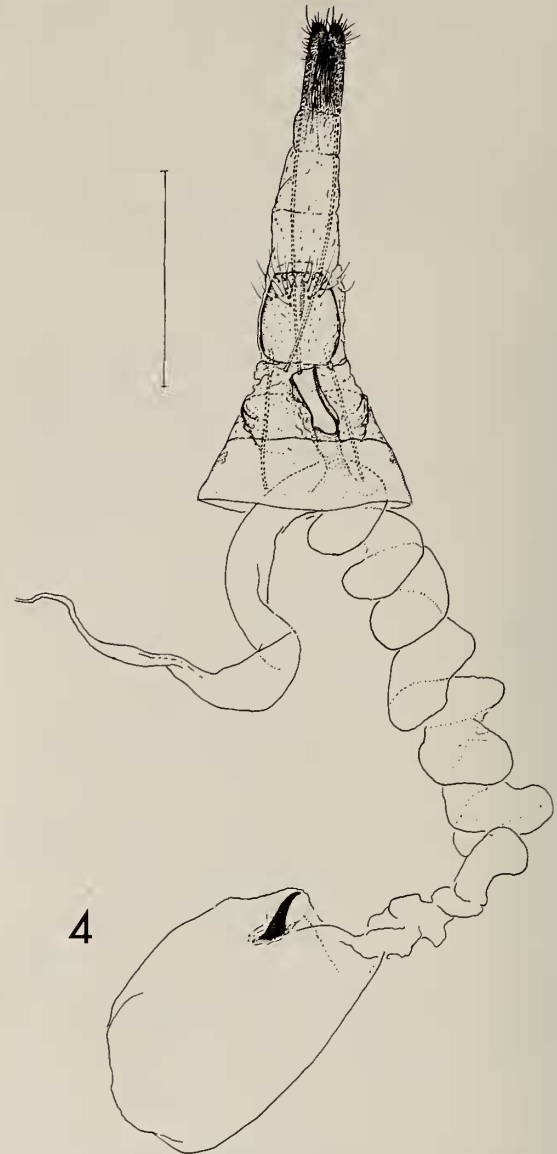


FIG. 4. Female genitalia of *Hypatopa tapadulcea* Adamski. Scale line = 1.0 mm.

near posterior margin of seventh sternum; antrum membranous, short, forming a common inception with ductus seminalis and ductus bursae; basal part of ductus seminalis as wide as posterior part of ductus bursae, ductus bursae spiralled from anterior end of antrum to corpus bursae; corpus bursae with a long hornlike signum.

Types. *Holotype*: ♂, "Est[acion] Pitilla, 700 m[eters], 9 k[ilo]m[eters] S[outh] Sta[cion] Cecilia, P.N. Guanacaste, Prov[incia] Guan[acaste], COSTA RICA, C. Moraga, Se[p]t[iembre] 1991, L-N-330200, 380200", "COSTA RICA, INBio, CR1000, 460377" [Bar code label]. Holotype is not dissected and is deposited in

the Entomology Museum at Instituto Nacional de Biodiversidad, Santo Domingo, Heredia, Costa Rica.

Paratypes: 75 paratypes: 12 ♂♂, 21 ♀♀, "Est Cacao, 1000–1400 m, Lado SO Vol Cacao, P.N.G. Prov Guan, COSTA RICA, C. Chaves, Abr 1991, L-N-323300, 375700", two dissected males with the following label data, "INBio, Genitalia Slide by D. Adamski, No. 97, Sex ♂", "INBio, Genitalia Slide by D. Adamski, No. 98, Sex ♂", four dissected females with the following label data, "INBio, Genitalia Slide by D. Adamski, No. 99, Sex ♀", "INBio, Genitalia Slide by D. Adamski, No. 134, Sex ♀", "INBio, Genitalia Slide by D. Adamski, No. 135, Sex ♀", "INBio, Wing Slide by D. Adamski, No. 136, Sex ♀"; 3 ♂♂, 9 ♀♀, same label data as above except, "Set"; 6 ♀♀, same label data as above except, "25 Set–11 Oct 1990"; 2 ♀♀, same data as above except, "11 Set–11 Oct 1991"; 1 ♂, 2 ♀♀, same data as above except, "23 Oct–9 Nov 1990"; 1 ♂, same label data as above except, "Mar 1991"; "Est Pitilla, 700 m, 9 km S Sta Cecilia, P.N. Guanacaste, Prov Guanacaste, COSTA RICA, C. Moraga, Set 1991, L-N-330200, 380200", "INBio, Wing Slide by D. Adamski, No. 137, Sex ♀", 5 ♀♀, same label data as above except, "Abr 1991"; 2 ♀♀, same label data as above except, "Set 1991", one female dissected, and with the following label data, "INBio, Genitalia Slide by D. Adamski, No. 100, Sex ♀"; 3 ♀♀, same label data as above except, "2–19 Mar 1992", two specimens collected by P. Rios; "2 ♀♀, same data as above except, "31-Mar–15 Abr 1992, P. Rios"; 1 ♂, same data as above except, "23 Oct–12 Nov 1992, C. Cano"; 1 ♂, 4 ♀♀, "San Luis, Monteverde, Prov Punta, COSTA RICA, 1000–1350 m, Abr 1994, Z. Fuentes, L-N-449250-250850, #2845". Two paratypes deposited in The Natural History Museum, London, England; ten paratypes in The National Museum of Natural History, Smithsonian Institution, Washington, D.C.; all other paratypes in Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica.

Remarks. *Hypatopa tapadulcea* is probably more closely related to *H. interpunctella* (Dietz) of Utah, than other known species in the genus. This is based primarily on the similarity of the male genitalia because the female genitalia are structurally very different and do not support close kinship between the two species. Male *tapadulcea* and *interpunctella* share a similarly shaped uncus and gnathos, however, in *interpunctella*, the gnathos is notched. Both have the sacculus longer than wide; in *H. tapadulcea* the distal

margin is obtuse while in *H. interpunctella* the outer margin is subtriangular.

Hypatopa tapadulcea ranges from the high altitudes of the northwestern provinces along the Cordillera de Guanacaste southeast to the Cordillera de Tilarán in the Province of Puntarenas. The host for *H. tapadulcea* is unknown.

Etymology. The species epithet is derived from a brownish (similar in color to *H. tapadulcea*) crystalline, confectionary cake, *tapa dulce*, that is sold in market places throughout Costa Rica. This sweet is made from sugar cane and is broken into pieces and eaten like candy, or it is mixed with hot or cold water to make *agua dulce*. The *costarriqueños* consider *agua dulce* a national beverage.

Because I have examined the type specimens of all the New World *Hypatopa*, and hundreds of specimens of New World *Hypatopa* representing at least 100 undescribed species, I am confident that *Hypatopa tapadulcea* is the closest known relative of *H. interpunctella*. Many, if not most, undescribed species of Blastobasinae from the New World belong to *Hypatopa*, and with the large amount of museum specimens yet to be examined, the goal of hypothesizing nearest kin and phylogenetic relationships among all these taxa becomes problematic without a comprehensive alpha-taxonomic study.

ACKNOWLEDGMENTS

I thank Mario Camacho, Jessica Zamora Gonzalez, and Eugenio Phillips Rodriguez of The National Biodiversity Inventory Division, Instituto Nacional de Biodiversidad, Santo Domingo, Heredia, Costa Rica, for their help, cooperation, and warm hospitality during my visits to INBio; Carl Hansen of the Office of Imaging, Printing and Photographic Services for the photograph of the holotype of *Hypatopa tapadulcea*.

LITERATURE CITED

- ADAMSKI, D. & R. L. BROWN. 1989. Morphology and systematics of North American Blastobasidae (Lepidoptera: Gelechioidea). *Miss. Agr. For. Exp. Sta. Tech. Bull.* 165 (Miss. Entomol. Mus No. 1):1–70.
- CLARKE, J. F. G. 1941. The preparation of slides of the genitalia of Lepidoptera. *Bull. Brooklyn Entomol. Soc.* 36:149–161.
- HODGES, R. W. 1998. Gelechioidea. In N. P. Kristensen (ed.), *Handbuch der Zool.* 494 pp.
- KORNERUP, A. & J. H. WANSCHER. 1978. *Methuen handbook of colour.* 2nd ed. Methuen and Co., Ltd., London. 243 pp.
- MEYRICK, E. 1894. On a collection of Lepidoptera from upper Burma. *Trans. Entomol. Soc. London* 1894:1–29.

Received for publication 20 June 1998; revised and accepted 2 February 1999.